In the Specification:

Please amend the specification by substituting the paragraphs indicated below for the paragraphs as previously presented. Amendments to the specification are shown with additions underlined and deletions in [brackets].

Please amend the paragraph before the heading **BACKGROUND OF THE INVENTION** *as follows:*

[BY INVENTORS

Louis B. Rosenberg

Dean C. Chang]

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. Patent Application No. 09/734,630, filed December 11, 2000, on behalf of Louis B. Rosenberg et al., entitled "Designing Force Sensations For Force Feedback Computer Applications," which is a continuation-in-part of co-pending parent patent applications serial no. 08/566,282, filed December 1, 1995, on behalf of Louis B. Rosenberg et al., entitled, "Method and Apparatus for Controlling Force Feedback Interface Systems Utilizing a Host Computer," now Patent No. 5,734,373 and serial no. 08/846,011, filed April 25, 1997, on behalf of Rosenberg et al., entitled, "Method and Apparatus for Designing and Controlling Force Sensations in Force Feedback Computer Applications," now Patent No. 6,147,674 [both] each of which assigned to the assignee of this present application, and [both] each of which are incorporated by reference herein in their entirety.

Please replace the paragraph beginning at page 12, line 30 with the following paragraph:

FIGURE 2a is a top plan view and FIGURE 2b is a. side elevational view of one embodiment of an interface apparatus including a mechanical apparatus 70 and user object 34, in which electromagnetic voice coil actuators are used to provide forces to the user object. Such voice coil actuators are described in greater detail in co-pending patent application serial no. 08/560,091 now Patent No. 5,805,140, incorporated by reference herein. Interface apparatus 70 provides two linear degrees of freedom to user object 34 so that the user can translate object 12 in a planar workspace along the X axis, along the Y axis, or along both axes (diagonal movement). This embodiment is thus preferred for use with a mouse, puck, or similar user object 34.

Please replace the paragraph beginning at page 14, line 13 with the following paragraph:

Gimbal mechanism 140 provides two rotary degrees of freedom to object 34. A gimbal device as shown in Figure 3 is described in greater detail in co-pending patent applications serial nos. 08/374,288 and 08/400,233 now Patent Nos. 5,731,804 and 5,767,839, both hereby incorporated by reference in their entirety. Gimbal mechanism 140 provides support for apparatus 160 on grounded surface 142, such as a table top or similar surface. Gimbal mechanism 140 is a five-member linkage that includes a ground member 144, extension members 146a and 146b, and central members 148a and 148b. Gimbal mechanism 140 also includes capstan drive mechanisms 164.

Please replace the paragraph beginning at page 15, line 21 with the following

paragraph:

In the host control loop of information, force commands 180 are provided from the host computer to the microprocessor 26 and reported data 182 is provided from the microprocessor 26 to the host computer. In one direction of the host control loop, force commands 180 are output from the host computer to microprocessor 26 and instruct the microprocessor to output a force having specified characteristics. For example, in [co-pending patent application 08/566,282] Patent No. 5,734,373, a command protocol is disclosed in which a host command includes a command identifier, specifying the type of force, and one or more command parameters, specifying the characteristics of that type of force. The microprocessor decodes or parses the commands according to local software or firmware. The host computer can also provide other types of host commands to the microprocessor 26 to characterize reading data with sensors and reporting data.

Please replace the paragraph beginning at page 16, line 5 with the following
paragraph:

In the local control loop of information, actuator signals 184 are provided from the microprocessor 26 to actuators 30 and sensor signals 186 are provided from the sensors 28 and other input devices 39 to the microprocessor 26. The actuator signals 184 are provided from the microprocessor 26 to the actuators 30 to command the actuators to output a force or force sensation. The microprocessor can follow local program instructions (a "force routine") as described in greater detail in [co-pending application serial no. 08/566,282] Patent No. 5,734,373; incorporated by reference herein. Herein, the term "force sensation" refers to either a single force or a sequence of forces output by

the actuators 30 which provide a sensation to the user. For example, vibrations, textures, attractive forces, a single jolt, or a force "groove" are all considered force sensations, as are the dynamic sensations disclosed herein.